No. 801,384. PATENTED OCT. 10, 1905.

C. W. A. KOELKEBECK.

SEPARATOR.

APPLICATION FILED JAN. 7, 1901. RENEWED FEB. 23, 1905.

3 SHEETS—SHEET 1.

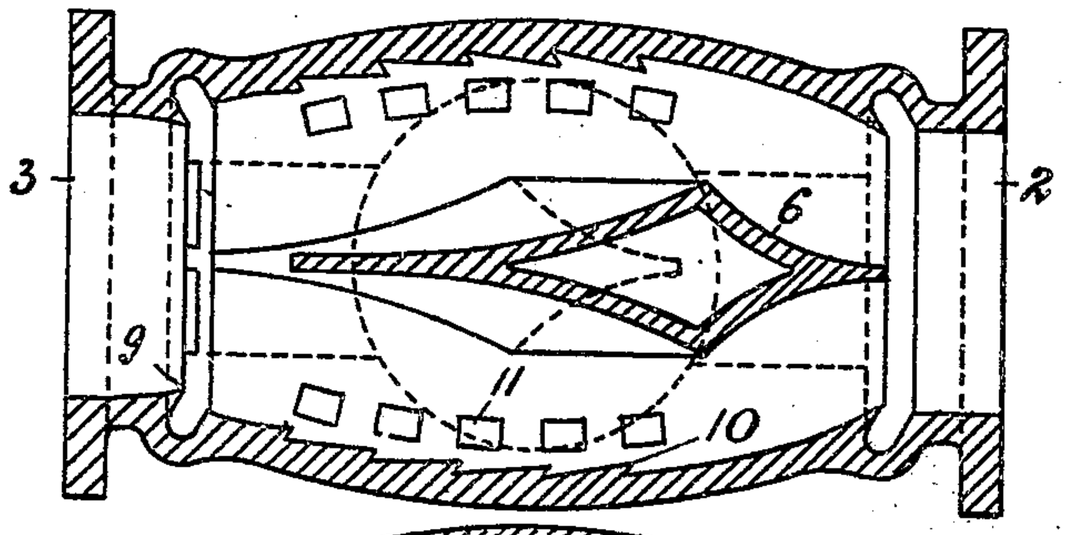

FIG. 3.

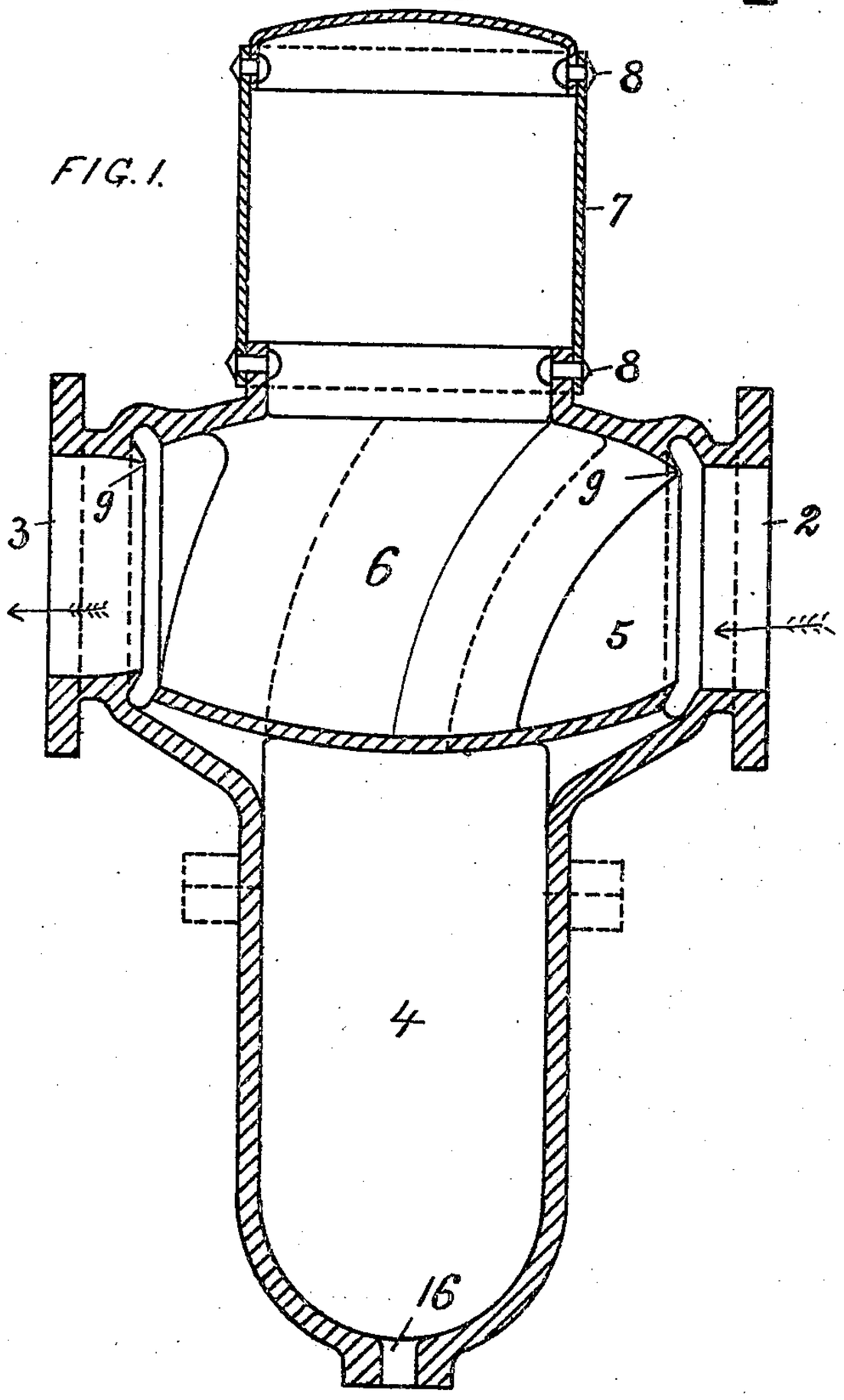

FIG. 1.

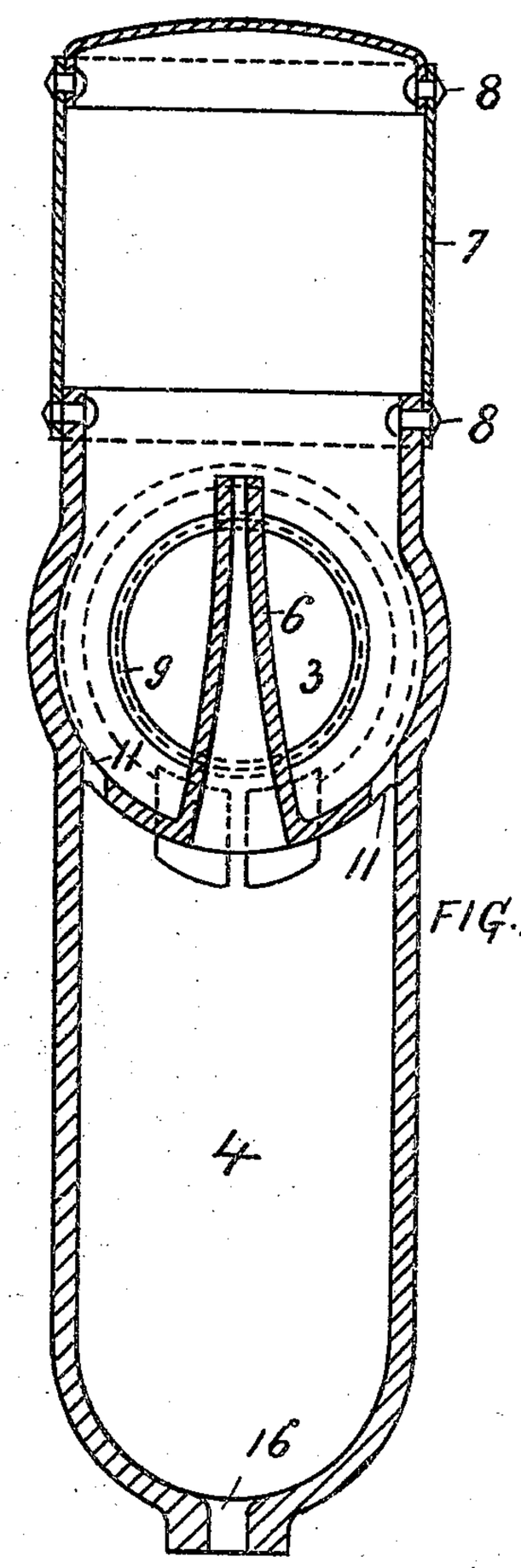

FIG. 2.

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W. P. Doolittle

INVENTOR:

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3 SHEETS—SHEET 2.

FIG. 6.

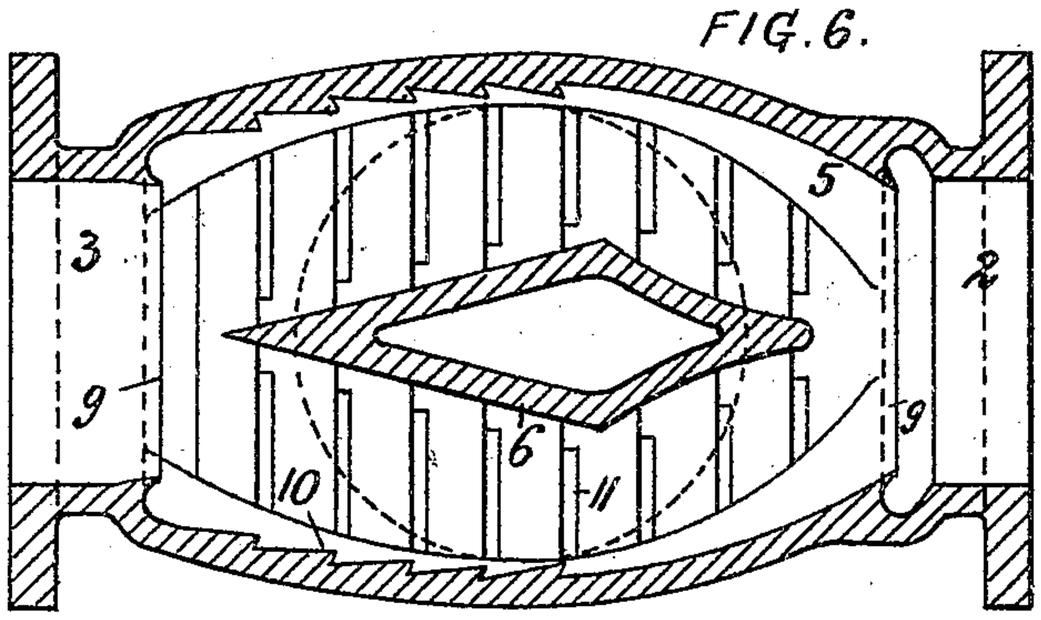


FIG. 5.

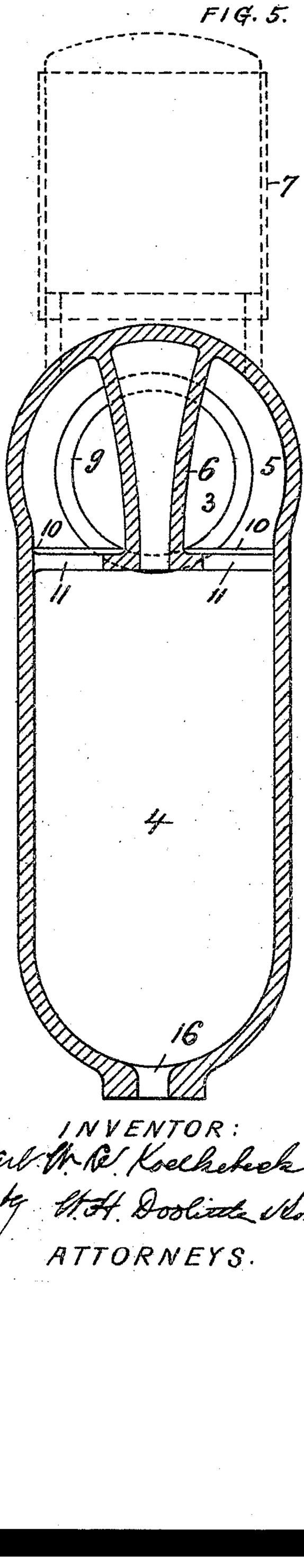
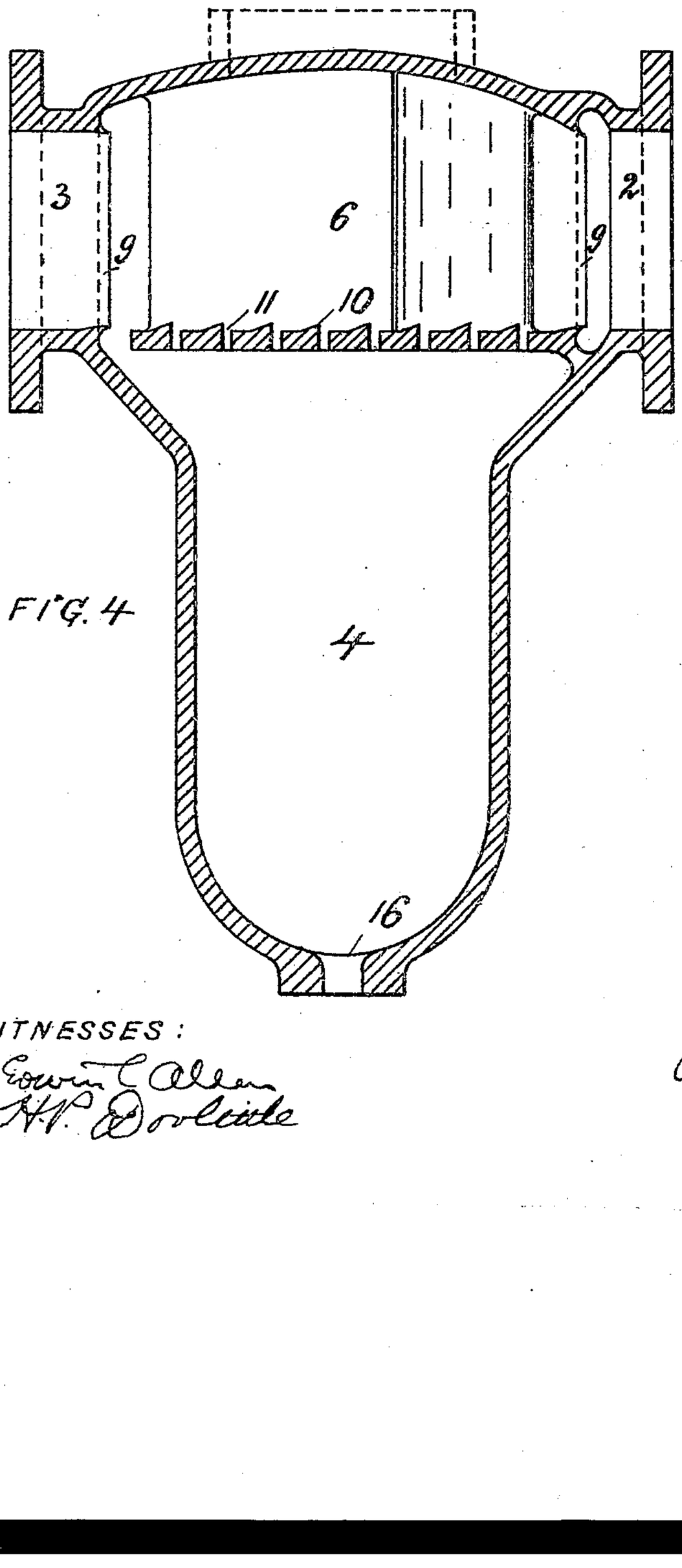


FIG. 4



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3 SHEETS—SHEET 3.

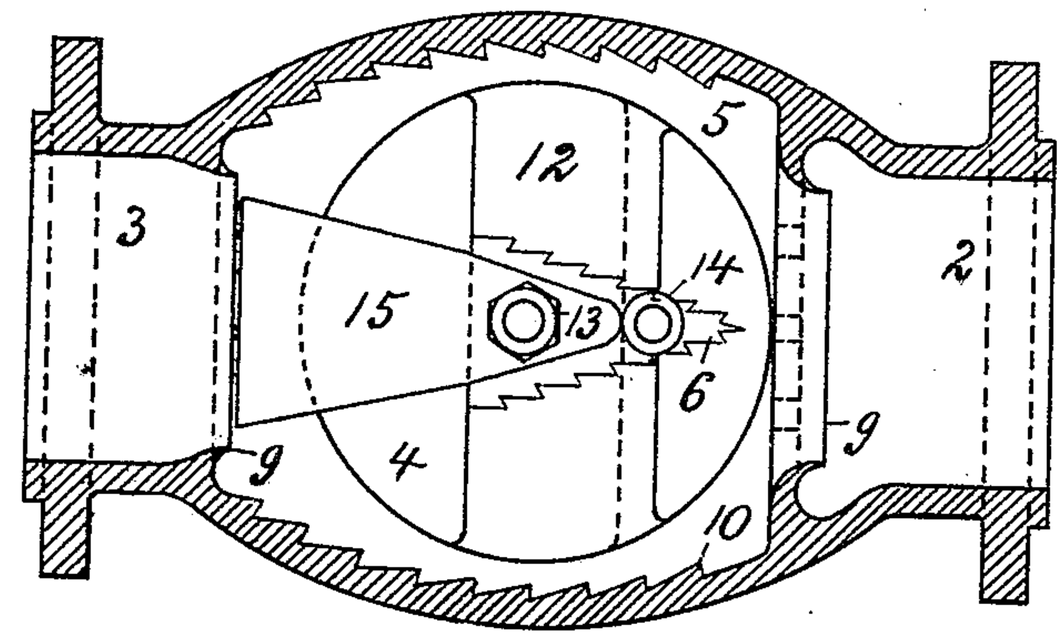


FIG. 9.

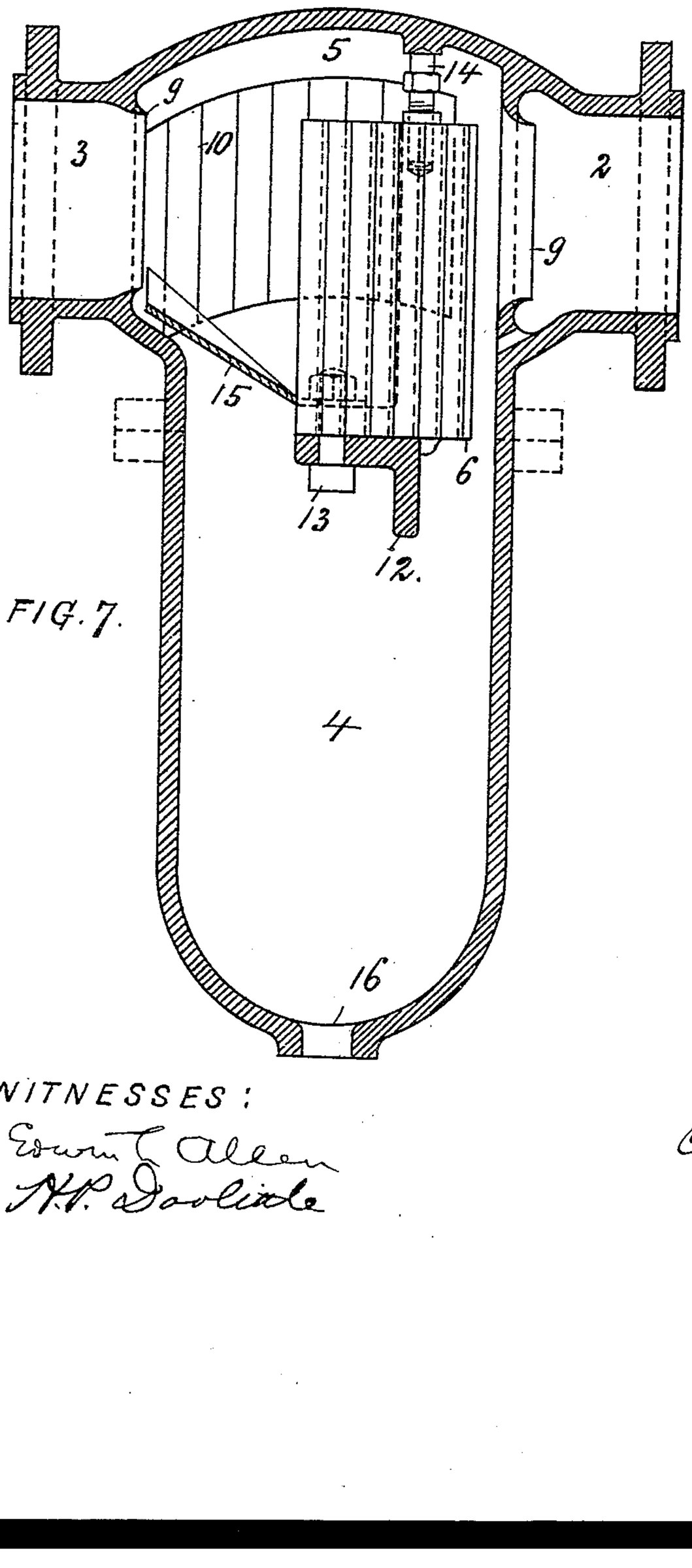
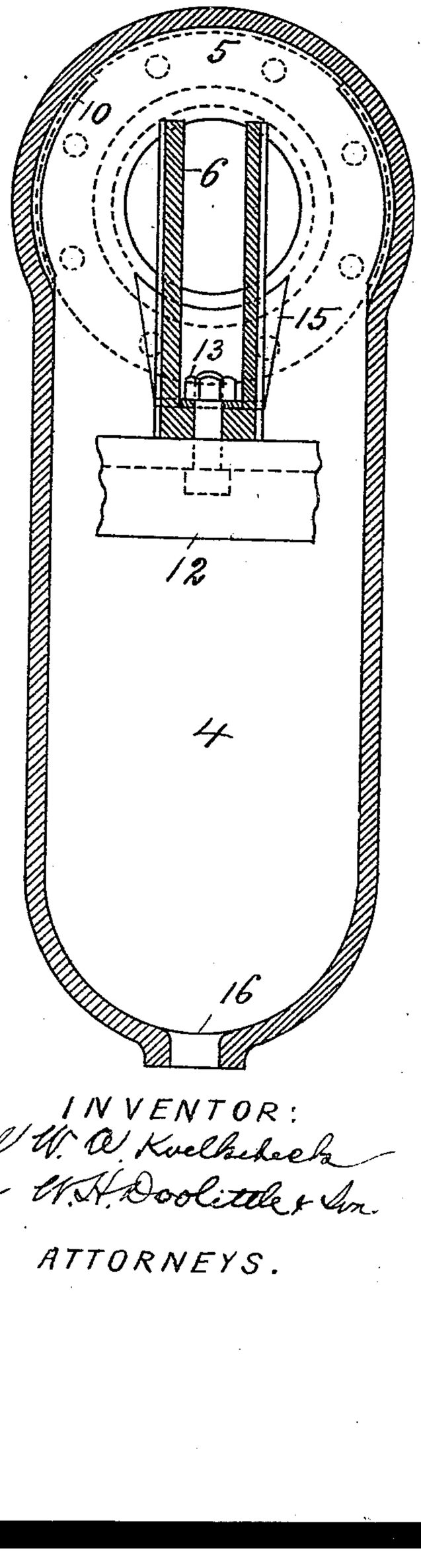


FIG. 7.

FIG. 8.



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UNITED STATES PATENT OFFICE.

CARL W. A. KOELKEBECK, OF PITTSBURG, PENNSYLVANIA.

SEPARATOR.

No. 801,384. Specification of Letters Patent. Patented Oct. 10, 1905.

Application filed January 7, 1901. Renewed February 23, 1905. Serial No. 246,914.

To all whom it may concern:

Be it known that I, CARL W. A. KOELKEBECK, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Separators, of which the following is a specification, reference being had therein to the accompanying drawings.

The objects of my invention are to provide a new and improved separator for removing water, grease, and other particles from a current of steam and to collect and carry off the water in the pipe or pipes leading to the separator, to provide means whereby a nearly constant and uniform steam-pressure is maintained between the separator and the engine connected therewith, and to obviate the usual loss of pressure caused by the passage of the current of steam through a separator.

To this end the present invention consists of a new and improved separator, in new and improved means for maintaining a constant and uniform steam-pressure between the separator and the engine and to prevent the reduction of pressure heretofore caused by the passage of the current of steam through the separator, and in the construction, arrangement, and combination of parts, all as hereinafter described.

In the accompanying drawings, which illustrate applications of my invention, Figure 1 is a central vertical sectional view of a separator and steam-chamber embodied in my invention; Fig. 2, a vertical sectional view, the section being taken at right angles to the view shown by Fig. 1; Fig. 3, a longitudinal section; Fig. 4, a central vertical section of a modified form, showing steam-chamber in dotted lines; Fig. 5, a sectional view at right angles to view shown by Fig. 4; Fig. 6, a cross-sectional view; Fig. 7, a central vertical sectional view of another modified form of separator embodying my invention; Fig. 8, a further vertical sectional view, and Fig. 9 a longitudinal sectional view.

Referring to the drawings, the separator is of such construction that its several parts may be made or cast integral—that is to say, the supply-nozzle 2, the machine-nozzle 3, the receiver 4, the main chamber or passage 5, and the spreader 6. If desirable, though, part of the receiver 4 may be made separate from the other parts or casting, as indicated by dotted lines in Fig. 1, and the spreader 6 may also be formed separately from the rest. Such a construction is shown by the modified form shown in Figs. 7, 8, and 9.

An important and characteristic feature of the present invention is the dome or auxiliary steam-chamber 7, which is preferably attached to the upper central portion of the separator proper by some suitable means—as, for example, rivets 8. By the employment of this auxiliary steam-chamber I am enabled to prevent the reduction of steam-pressure to any undesirable degree during the passage of the current of steam through the separator and to maintain a constant and uniform pressure between the separator and the machine. Heretofore the reduction of pressure caused by passing the current of steam through a separator has been considerable, and the importance of preventing this reduction will be readily appreciated by those familiar with this class of inventions. Inwardly-projecting parts or rings 9 are located in the main passage 5 adjacent to the inlet and exit nozzles 2 and 3 and are primarily designed for the purpose of catching the water caused by condensation in the pipe leading to the supply-nozzle and the water that is formed within the separator, owing to the same cause; but it should be noted that these rings also aid in freeing the rapidly-moving current of steam of the water carried therein.

I have shown in the several views various forms of spreaders 6, all of which, however, are substantially V-shaped and extend nearly the length and width of the main passage 5. The rapidly-moving current of steam is divided as it enters the passage 5 and caused to be thrown to both sides of the spreader toward and against the sides or those portions of the wall of the passage 5 having the projections or ribs 10. The wall of the passage 5 is also provided with slits or openings 11 for the purpose of allowing the water and other particles freed from the steam to pass into the receiver 4.

In the form illustrated by Figs. 7, 8, and 9 the spreader 6 is made separate from the casting and is supported and held in the desired position in the main passage 5 by the L-shaped piece 12 and the bolts 13 and 14. 15 is a deflector supported on and connected with the spreader by bolt 13. The receiver 4 is provided with the usual outlet-opening 16.

Having thus described my invention, what I claim is—

1. A steam-separator, comprising a main passage or chamber, a V-shaped spreader lo-

cated therein, inlet and outlet nozzles, or passages, skim-rings between said nozzles and the main passage, or chamber, internal ribs, or projections on the wall of the main passage or chamber, a water-receiver and ports, or passages, from the main passage or chamber, to the water-receiver, substantially as set forth.

2. In a steam-separator, a main steam-passage, inlet and outlet nozzles, a spreader located in the main steam-passage, a water-receiver in open communication with the main passage, and means for preventing the reduction of pressure during the passage of the current of steam through the separator, comprising, an auxiliary steam-chamber in communication with the main steam-passage, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CARL W. A. KOELKEBECK.

Witnesses:
EDWARD B. VAILL,
W. G. DOOLITTLE.